

What is claimed is:

1. A method to block data transmission interference from an input of a receiver in a hearing instrument, comprising:
 - 5 receiving an acoustic-based signal representative of sound received at a microphone system;
 - determining if a trigger associated with a data transmission has occurred;
 - presenting a signal representative of the acoustic-based signal to the input of the receiver when the trigger has not occurred such that the receiver converts the
 - 10 acoustic-based signal into an output acoustic signal; and
 - blocking the signal representative of the acoustic-based signal from the input of the receiver when the trigger has occurred such that data transmission interference is blocked from being converted into the output acoustic signal.
- 15 2. The method of claim 1, further comprising generating the trigger associated with the wireless transmission when a wireless transmission carrier has been sensed.
3. The method of claim 1, further comprising generating the trigger associated with the wireless transmission in anticipation of the wireless transmission.
- 20 4. The method of claim 1, further comprising generating the trigger associated with the wireless transmission for at least a portion of a wireless transmission duration.
- 25 5. The method of claim 1, wherein, when the signal representative of the acoustic-based signal is blocked from the input of the receiver, the receiver does not generate an output acoustic signal.
6. The method of claim 1, further comprising presenting a signal representative of a substitute waveform to the input of the receiver when the trigger has occurred.
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7. The method of claim 6, wherein presenting a signal representative of a substitute waveform to the input of the receiver includes presenting a predetermined ambient waveform to the input of the receiver such that the receiver generates an acoustic signal representative of a preprogrammed ambient sound.

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8. The method of claim 6, further comprising:
sampling the signal representative of the acoustic-based signal; and
storing data in a computer-readable medium to form a sample waveform,
wherein presenting a signal representative of a substitute waveform to the
10 input of the receiver when the trigger has occurred includes presenting a signal
representative of the sample waveform to the input of the receiver when the trigger
has occurred.

9. The method of claim 6, wherein presenting a signal representative of a
15 substitute waveform to the input of the receiver when the trigger has occurred
includes presenting a signal having a duration of 1 to 50 ms.

10. The method of claim 1, further comprising controlling a presentation of a
signal to the input of the receiver such that, when the trigger associated with a data
20 transmission has occurred, the receiver generates one of:
no acoustic signal; and
a substitute acoustic signal based on a detected acoustic signal that precedes
the data transmission.

25 11. The method of claim 1, further comprising controlling a presentation of a
signal to the input of the receiver such that, when the trigger associated with a data
transmission has occurred, the receiver generates one of:
no acoustic signal;
a first substitute acoustic signal corresponding to a predetermined ambient
30 sound; and

a second substitute acoustic signal based on a detected acoustic signal that precedes the data transmission.

12. A hearing instrument, comprising:

5 a data receiver to receive a data transmission;
a microphone system to receive an input acoustic signal and generate an acoustic-based signal;

a hearing instrument receiver to receive and convert a processed signal representative of the acoustic-based signal into an output acoustic signal; and

10 means to block the signal representative of the acoustic-based signal for at least a portion of a time period when the data receiver receives a data transmission such that the output acoustic signal does not include noise attributed to the data transmission.

15 13. The hearing instrument of claim 12, further comprising a computer-readable medium, including data representative of a substitute waveform signal, wherein the means to block the acoustic-based signal includes means to substitute the substitute waveform signal for the processed signal for at least a portion of a period when the data receiver receives a data transmission such that, when the substitute waveform is
20 substituted for the processed signal, the hearing instrument receiver receives and converts the substitute waveform signal into an output acoustic signal.

14. The hearing instrument of claim 13, further comprising means to sample the signal representative of the acoustic-based signal before the data transmission and
25 form a corresponding sample waveform signal, wherein the means to substitute the substitute waveform signal for the processed signal includes means to substitute the processed signal with the sample waveform signal such that the hearing instrument receiver receives and converts the sample waveform signal into an acoustic signal similar to an output acoustic signal generated prior to the data transmission.

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15. A hearing instrument, comprising:
a data receiver to receive a data transmission;
a microphone system to receive an input acoustic signal and generate an acoustic-based signal;
- 5 a switch having a first input and an output, the switch being configured to selectively connect the first input to the output;
a first signal path to carry a signal representative of the acoustic-based signal from the microphone system to the first input of the switch;
a hearing instrument receiver to convert an output signal from the output of
- 10 the switch into an output acoustic signal; and
a controller to receive a trigger signal indicative of a data transmission occurrence, and to communicate with the switch to selectively disconnect the first input from the output during at least a portion of the data transmission occurrence such that interference associated with the data transmission occurrence is not
- 15 transferred to the hearing instrument receiver.
16. The hearing instrument of claim 15,
wherein the switch further has a second input, the switch being configured to selectively connect one of the first input and the second input to the output;
- 20 a computer-readable medium, including data representative of a substitute waveform signal; and
a second signal path to carry a signal representative of the substitute waveform signal from the computer-readable medium to the second input of the switch;
- 25 wherein the controller is configured to communicate with the switch to selectively connect the second input to the output during at least a portion of the data transmission occurrence.
17. The hearing instrument of claim 16, wherein the computer-readable medium
- 30 includes data representative of a predetermined ambient waveform signal to function as the substitute waveform signal.

18. The hearing instrument of claim 16, further comprising a sampling module to sample the output signal and form a sample waveform signal, wherein the computer-readable medium includes data representative of the sample waveform signal to function as the substitute waveform signal.
19. The hearing instrument of claim 16, further comprising:
a digital signal processing module to receive and process the acoustic-based signal from the microphone system and to determine waveform morphology information about the acoustic-based signal; and
a waveform signal processing module to receive the substitute waveform signal from the computer-readable medium, to receive the waveform morphology information from the digital signal processing module, and to adjust morphological parameters of the substitute waveform signal based on the waveform morphology information from the digital signal processing module.
20. The hearing instrument of claim 15, wherein at least one of the switch and the controller is implemented using software.
21. The hearing instrument of claim 15, wherein at least one of the switch and the controller is implemented using hardware.
22. A hearing instrument, comprising:
a wireless transceiver to receive a wireless data transmission and convert the wireless data transmission into a data signal;
a controller to receive the data signal and store programming instructions for the hearing instrument in a program memory module;
a trigger generator to send a trigger signal to the controller, the trigger signal corresponding to a wireless data transmission occurrence;
a microphone system to receive an acoustic signal and convert the acoustic signal into an analog acoustic-based signal;

an analog-to-digital converter to convert the analog acoustic-based signal into a digital acoustic-based signal;

a digital signal processing module to transform the digital acoustic-based signal into a processed acoustic-based signal;

5 a blocking module to selectively block the processed acoustic-based signal from passing as a digital output signal, wherein in response to the trigger signal, the controller operates to selectively block the processed acoustic-based signal from passing as the digital output signal;

10 a digital-to-analog converter to convert the digital output signal into an analog output signal; and

a receiver to convert the analog output signal into an acoustic signal.

23. The hearing instrument of claim 22, further comprising:

15 a waveform memory module, the waveform memory module including data to construct a substitute waveform signal; and

a waveform signal processing module to transform the substitute waveform signal into a processed substitute waveform signal;

20 wherein the blocking module is configured to selectively pass one of the processed substitute waveform signal and the processed acoustic-based signal as the digital output signal, and in response to the trigger signal, the controller operates to selectively pass the processed substitute waveform as the digital output signal in place of the acoustic-based output signal.

24. The hearing instrument of claim 23, wherein the waveform memory module includes data to construct a predetermined substitute waveform signal representative of ambient sound.

25. The hearing instrument of claim 23, further comprising a sample module to sample a preceding digital output signal corresponding to a preceding processed acoustic-based output signal, and to store a sample waveform corresponding to the

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preceding digital output signal as data in the waveform memory module for use as the substitute waveform signal.

26. The hearing instrument of claim 23, wherein the waveform signal processing
5 module is configured to receive morphology information corresponding to a previous acoustic-based signal, and to adjust morphological parameters of the substitute waveform signal to form the processed waveform signal.

27. The hearing instrument of claim 26, wherein the morphological parameters
10 that are capable of being adjusted by the waveform signal processing module, includes: phase, frequency and amplitude.

28. The hearing instrument of claim 26, wherein the waveform signal processing
module, includes a module to adjust a length of the substitute waveform signal.

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29. The hearing instrument of claim 26, wherein the waveform signal processing
module, includes a module to smooth ends of the substitute waveform to connect a first end of the substitute waveform to a preceding acoustic-based waveform and to connect a second end of the substitute waveform to a succeeding acoustic-based
20 waveform.

30. The hearing instrument of claim 23, wherein the substitute waveform signal has a duration of 1 to 50 ms.

25 31. The hearing instrument of claim 22, wherein the trigger signal corresponds to an entire time period associated with the wireless data transmission.

32. The hearing instrument of claim 22, wherein the trigger signal corresponds to at least a portion of a time period associated with the wireless data transmission.

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33. The hearing instrument of claim 22, further comprising a carrier sense module to sense a carrier associated with the wireless data transmission, wherein the trigger signal corresponds a sensed carrier.